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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,724	04/06/2006	Thomas Beck	2003P10483WOUS	1920
22116 7590 06/17/2009 SIEMENS CORPORATION INTELLECTUAL PROPERTY DEPARTMENT 170 WOOD AVENUE SOUTH ISELIN, NJ 08830				
EXAMINER				
PAIK, SANG YEOP				
ART UNIT		PAPER NUMBER		
3742				
MAIL DATE		DELIVERY MODE		
06/17/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,724

Applicant(s)

BECK ET AL.

Examiner

SANG Y. PAIK

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-39 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 20-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/55/08)
Paper No(s)/Mail Date 7/30/07, 4/6/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 27, 28, 37 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 27 and 37, there is no proper antecedent basis for "the metallic layer".

In claims 28 and 38, there is no proper antecedent basis for "the substrate".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelly et al (US 5,683,600) in view of Neil et al (US 6,809,291), and Kobayashi et al (US 2004/0173942) or Chang et al (US 6,864,459).

Kelly shows the method claimed including producing a hole in a nickel based superalloy metal turbine by laser beams, but Kelly does not show using a shorter laser pulse length and a longer laser pulse length.

Neil shows that it is known to provide a first short pulse laser followed by second a longer pulse laser for processing or machining metal alloys, ceramics, polymers, or

other materials. Neil shows that the short pulse laser having an ultrashort pulse having a pulse length in the range of 100-600 femtoseconds wherein the longer pulse length in the range of 100 ns to 1 ms, and Neil further shows the ultrashort pulse produces a faster machining of the surface with a minimum heating affect with no craking or melting wherein the second laser would sustain and enlarge the beamed area.

Kobayashi shows that it is known to provide a laser for producing a hole with a short laser pulse in a first region of the hole which is the top or outer region of the hole with a longer later pulse for producing a second region of the hole which is the inner region of the hole. Chang also shows that it is known to provide a first laser beam to process an inner region of a hole and a second laser beam to process an outer region of a hole.

In view of Neil, and Kobayashi or Chang, it would have been obvious to one of ordinary skill in the art to adapt Kelly with a first short pulse laser to initiate a more accurate and effective drilling of a hole in a substrate with a second longer pulse laser to enlarge or sustain the hole to a desired shape or dimension.

5. Claims 22-26, 28-36, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelly in view of Neil, and Kobayashi or Chang as applied to claims 20 and 21 above, and further in view of Mead et al (US 6,541,731).

Kelly in view of Neil, and Kobayashi or Chang, shows the method claimed except a plurality of mirrors for directing the beams one at a time or simultaneously.

Mead shows that it is known in the art to provide a plurality of laser beam sources with a plurality of mirrors to direct the laser beams one at a time or simultaneously as illustrated in Figures 5, 6, and 8.

In view of Mead, it would have been obvious to one of ordinary skill in the art to adapt Kelly, as modified by Neil, and Kobayashi or Chang, with a plurality of mirrors to either provide the laser beams one at a time or simultaneously to affect the desired laser beam intensity or dimensions.

With respect to claims 23 and 33, it is noted that as the hole is continued to be formed, the laser pulse lengths are increased as illustrated in Figure 1. With respect to claims 26 and 36, Kobayoshi further shows a substrate with a metallic layer.

6. Claims 27 and 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Kelly in view of Neil, Kobayashi or Chang, and Mead, as applied to claims 22-26, 28-36, 38 and 39 above, and further in view of Mega et al (US 2004/0169022).

Kelly in view of Neil, Kobayashi or Chang, and Mead, shows the method claimed except for a metallic layer having the recited composition.

Mega shows that it is known in the art that a turbine or a turbine blade is made of a nickel based superalloy further having chromium, aluminum, titanium which is well known to be a rare earth element.

In view of Mega, it would have been obvious to one of ordinary skill in the art to adapt Kelly, as modified by Neil, Kobayashi or Chang, and Mead, with a metallic layer made of the recited composition which is well known to be a suitable material for a turbine that has high thermal resistance.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG Y. PAIK whose telephone number is (571) 272-4783. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SANG Y PAIK/
Primary Examiner, Art Unit 3742